ZeroAir

User Manual

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TEXOL Products

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Manual Revision		
Release Date	**Version**	**Record of Revision**
19/10/05	*1A*	*First Release*

This manual contains technical information to enable operation, maintenance, troubleshooting and repair of the system.

In all communications with Texol please quote the serial number of the system you are referring to. The serial number can be found on the CE/Services label attached to the rear of the enclosure.

For easy reference, copy the serial numbers into the boxes below:

Generator Model Type:	
Serial Number:	

Disclaimer

Texol Gasgen Ltd has written this manual to be an easy to use guide for the Zero Air generator range. All statements, technical information, recommendations in this manual and in any associated guides or related documents are written in good faith. However the accuracy and the completeness thereof are not guaranteed or warranted. They are not intended to be, nor should they be understood to be, representations or warranties concerning the products described. This generator has been sold subject to the limited warranties set forth in the warranty statement. Further, Texol reserves the right to make changes in the specifications of the products described in this manual at any time without notice and without obligation to notify any person of such changes. This laboratory gas generator is designed for operation only by trained personnel familiar with the use of similar equipment and with safety requirements for the use of nitrogen and other industrial gases. Before operating this equipment, make sure to read and understand this information provided herein. If you have any questions, please contact Texol Gasgen Ltd or your generator supplier.

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How to Use This Manual

This manual is designed to be **user friendly**. The format includes several symbols. Placed next to text, they give you visual cues about the contents.

✓ This text is part of a **checklist**.

If you want to learn helpful **hints**, pay attention to this symbol.

Warning! Be sure to read the important text next to this symbol.

For further information on the subject, refer to the areas suggested next to this symbol.

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1. Introduction

Warnings

1. When required to open the enclosure for repair or maintenance, ensure that the unit is disconnected from the electrical mains supply.

2. No unqualified or untrained personnel should operate, repair or maintain the system.

3. Texol shall not be liable for damages to the customer's own equipment which is the result of the contravention of the products specifications, warnings, cautions and notes, and the common sense of good engineering practice.

4. Do not disconnect or exchange any pipes or cables while the system is powered.

5. It is the user's responsibility to observe all safety rules and observe the system product specifications.

2. Installation

Material Listing

After unpacking your Generator, you should have the following components:

✓ Zero Air Unit (1 off)

✓ IEC Power Cable (1 off)

✓ This user manual (1 off)

ZeroAir Quick Start Guide

1. Take the unit out of the packaging
2. Connect air supply to the INLET filter at the back of the ZeroAir using the ¼" BSP thread (see diagram below)
3. Connect the application's supply to the OUTLET filter at the back of the ZeroAir using the ¼" BSP thread (see diagram below)
4. Put IEC cable into socket at the back of the ZeroAir and turn on the red switch on the socket (see diagram below). Plug into wall outlet

Air Inlet
This is the compressed air inlet. Air compressor units are available from Texol specifically for **ZeroAir** and are supplied with all fittings. If you are using an existing air supply then please ensure your air supply is compatible. The thread on this port is 1/4" female of type Rc.

ZeroAir Outlet
This is the Hydrocarbon Free Air Outlet.
This should be connected to your application with suitable piping, the thread is 1/4" female Rc.
Attach the pipe to the equipment requiring Hydrocarbon free air.

Power Socket
A power cable is supplied with a socket to attach to this IEC Chassis Plug

Main Power Switch
This switches the supply of power for the whole system on/off.

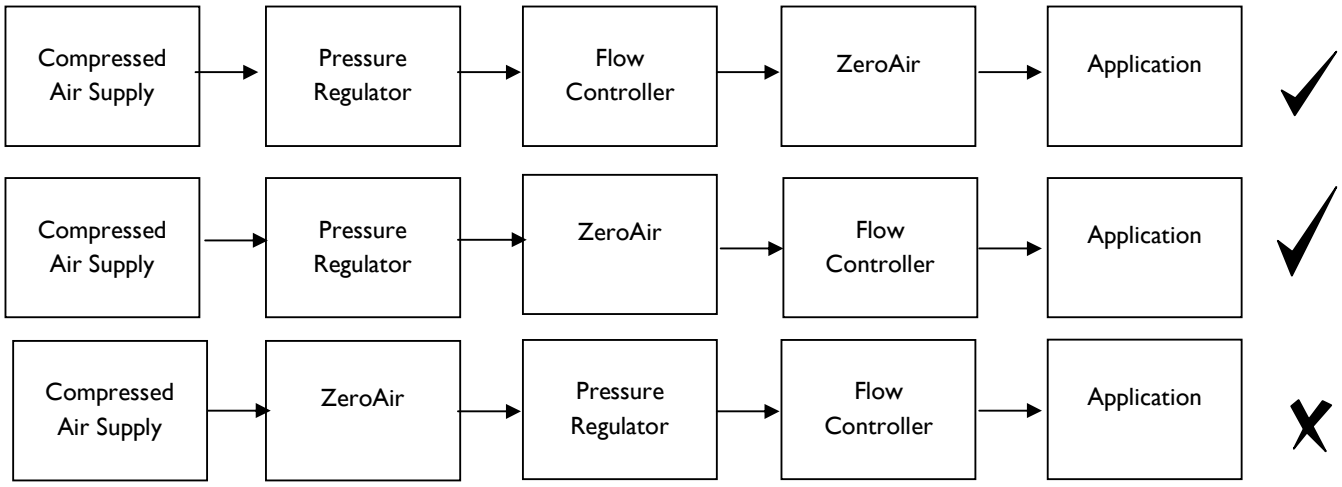
Fuse Holder
This holds a fuse to protect the **ZeroAir** generator.

5. Turn on the power switch at the front of the ZeroAir which should illuminate green.

Power Switch

6. After 5 minutes you should be able to get the results from the ZeroAir for the application.

System Setup



Compressor Hook-up and Piping

ONLY USE AIR FROM AN OIL FREE/OIL LESS COMPRESSOR OR THE QUALITY OF THE AIR FROM THE COMPRESSOR AFTER FILTERING IS BETTER THAN THAT DEMANDED FOR BREATHING AIR BY BSEN12021. OIL LUBRICATED AIR WILL PERMANENTLY DAMAGE YOUR GENERATOR.

The compressed air requirements of the **ZeroAir** generator are the same as the hydrocarbon free air requirement of the instrument e.g. if an instrument requires 8 l/min at 5 bar/72.5 psi of hydrocarbon free air then the compressed air requirement will be 8 l/min at 5 bar/72.5 psi.

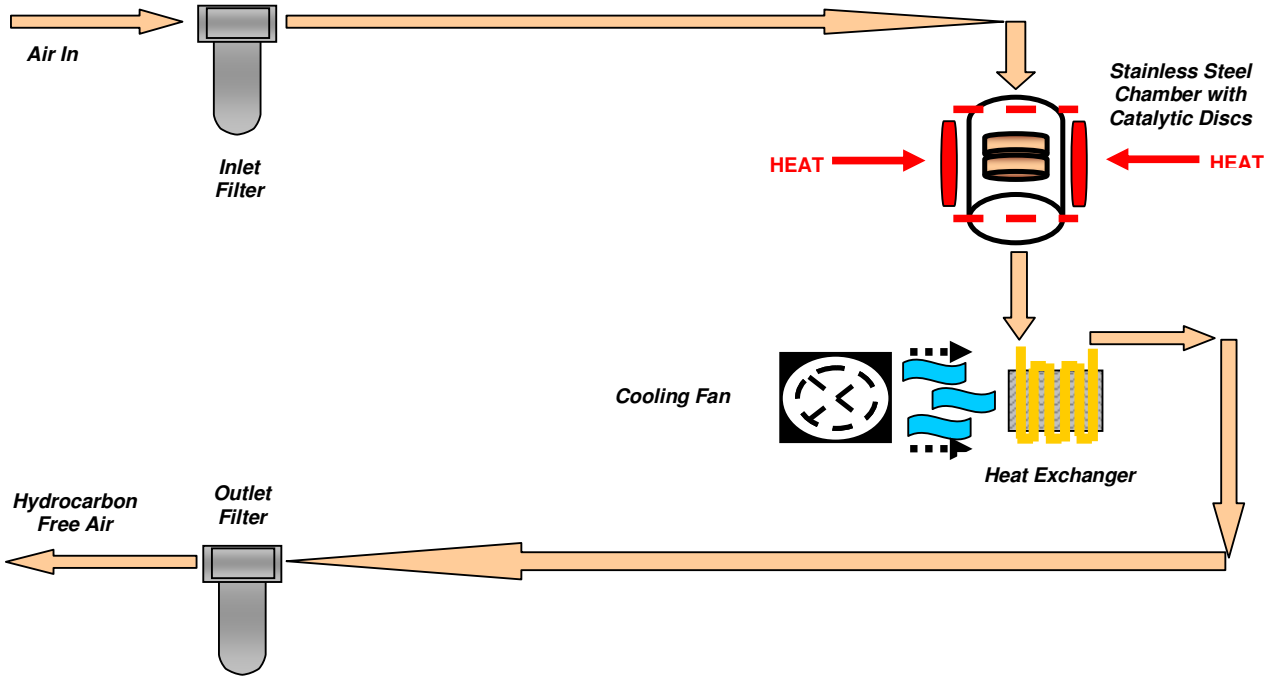
The maximum inlet pressure of the **ZeroAir** generator is 10 bar/145 psi.

If a compressor is being used with a higher outlet pressure than 10 Bar/145 psi then the pressure out of the compressor must be regulated down to 10 bar/145 psi or less.

The piping used with the **ZeroAir** generator is standard compressed air pipe, this pipe must be clean as any oil or grease would contain and give off hydrocarbons. The pipe must be specified to have a working pressure equal to or higher than the maximum pressure of the compressor (usually 10 bar/145 p

3. Operation

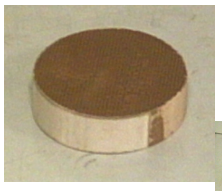
Operation Summary



Pneumatic Summary

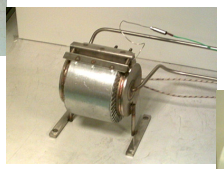
1. Inlet Filter 0.1 micron

2. Catalyst (ceramic disc)

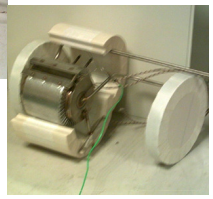


Catalyst (Palladium coated ceramic disc)

Within Pressurised Stainless Steel Chamber

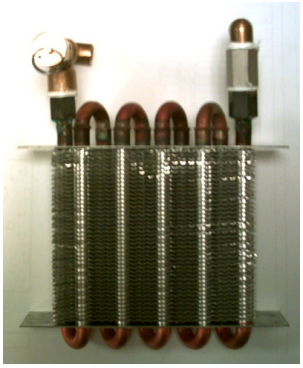


Wrapped with Heater (550 C)

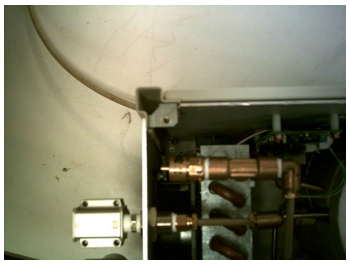


Enclosed in insulation

3. Heat Exchanger

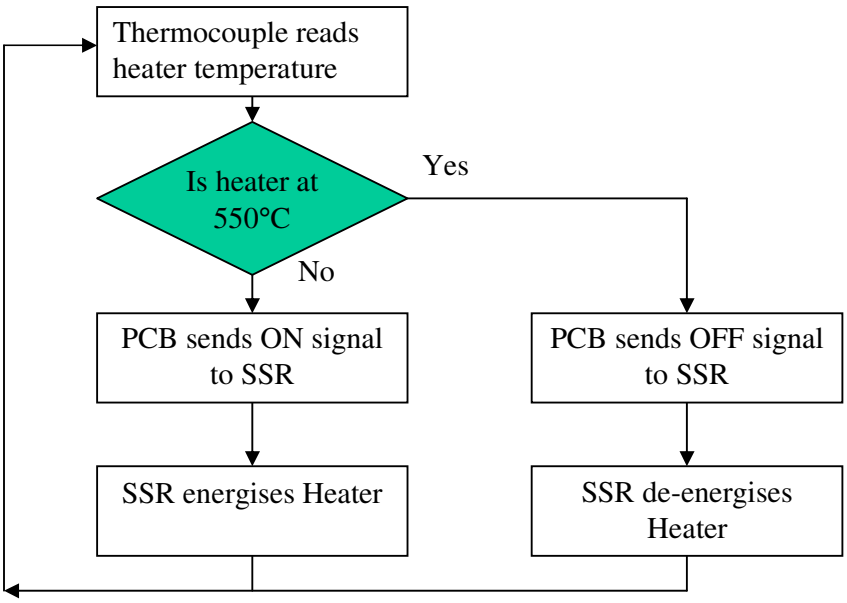


4. Pressure Relief Valve (11 bar)

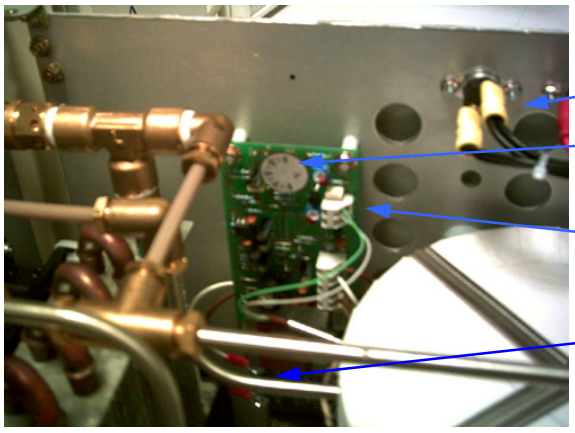


5. Outlet Filter 0.1 micron

Electrical Summary



1. PCB (showing thermocouple input and temperature control knob)
   Thermostats and SSR (Solid State Relay)



4 Maintenance

Servicing

This section describes how to maintain your **ZeroAir** Generator to give optimum performance for years to come.

The filter element within the filter should be renewed once a year.

The compressed air filters are fitted at the back of your generator. Please contact your local dealer quoting
Part Number: TPL-SP0006

Ensure that your air supply is switched off before any maintenance work is carried out. Any pressure left in the line can be drained by pushing in the auto drain.

The filter can be opened while still attached to the Generator. Support the filter main body and unscrew the filter bowl with your hand (there is no need for any tools, as they could damage it).

When opened you will find two o-rings, a spring and a filter element.

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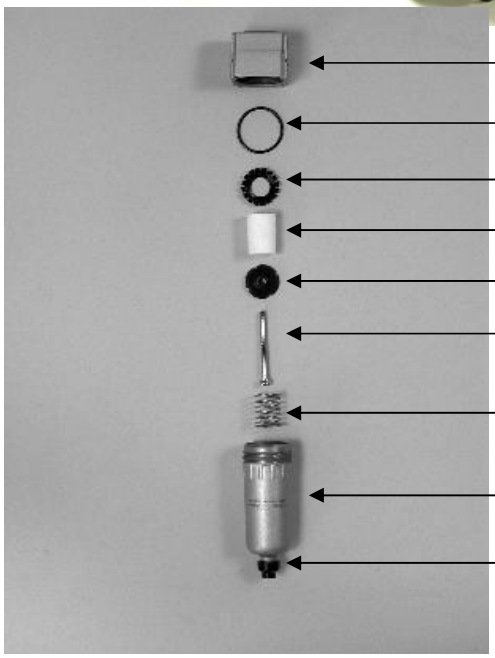
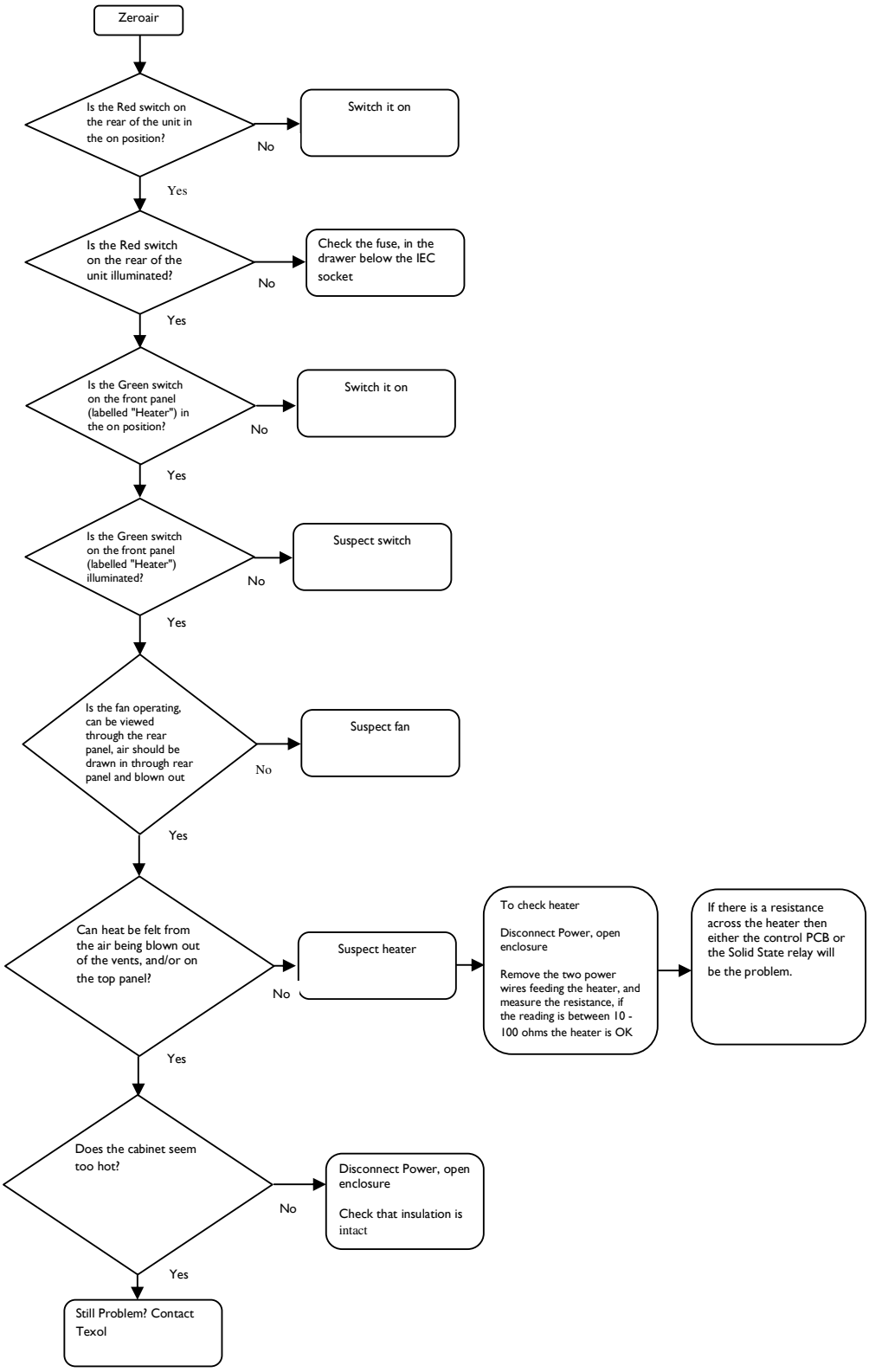


The filter element will still be attached to the filter main body, to remove it unscrew it anti-clockwise
Screw on the new replacement filter element with the small o-ring before it.
Ensure the large o-ring is in place, and the spring is in line. Then screw the filter bowl back into the filter main body by hand (again do not use any tools to tighten it, just make it hand tight).

5. Troubleshooting

Flow Chart


Zeroair
Is the Red switch on the rear of the unit in the on position?
No
Switch it on
Yes
Is the Red switch on the rear of the unit illuminated?
No
Check the fuse, in the drawer below the IEC socket
Yes
Is the Green switch on the front panel (labelled "Heater") in the on position?
No
Switch it on
Yes
Is the Green switch on the front panel (labelled "Heater") illuminated?
No
Suspect switch
Yes
Is the fan operating, can be viewed through the rear panel, air should be drawn in through rear panel and blown out
No
Suspect fan
Yes
Can heat be felt from the air being blown out of the vents, and/or on the top panel?
No
Suspect heater
To check heater
Disconnect Power, open enclosure
Remove the two power wires feeding the heater, and measure the resistance, if the reading is between 10 - 100 ohms the heater is OK
If there is a resistance across the heater then either the control PCB or the Solid State relay will be the problem.
Yes
Does the cabinet seem too hot?
No
Disconnect Power, open enclosure
Check that insulation is intact
Yes
Still Problem? Contact Texol

6. Appendices

Spare Parts

Texol Part Number	Part Description	Qty	Replacement Period
TPL-SP0006	Service Pack for ZeroAir	1	Annual

Tool List

- 2.5mm Allen Key
- 12mm & 13mm Spanners
- Type-K Thermocouple & Thermocouple meter
- Filter Removal Tool (or Plumbers pliers with protected teeth)
- Small Flat electrical screwdriver
- Leak Detector

Threads

The table below specifies which types of threads are compatible with the inlet and outlet ports on the rear of the ZeroAir.

Thread	Applicable Standard	Compatible	Flank Angle	Male or Female	Taper or Parallel
BSP	BS84: 1956 (obsolescent) {previously 1940}	**N**	55°	female	Parallel
BSPT	BS21: 1938 {nomenclature changed 1957}	**Y**	55°	Male/female	Taper
G	BS2779: 1986 (ISO228, DIN259)	**N**	55°	Male	Parallel
G	BS1287/BS2779	**N**	55°	Male/female	Parallel
NPT	ANSI B2.1-1968	**N**	60°	Male/female	Taper
NPTF	ANSI B1.20.3-1976	**N**	60°	Male/female	Taper
PF	JIS B0203 (ISO7/1)	**N**	55°	Male/female	Parallel
PT	JIS B0203 (ISO7/1)	**Y**	55°	Male/female	Taper
R	BS21:1985 (ISO7/1, DIN 3852)	**Y**	55°	Male	Taper
UNI	SMC Thread	**Y**		Male	

7. Warranty

Limited Warranty

LIMITED WARRANTY: TEXOL GASGEN LTD. ("**TEXOL"**) warrants that the ITEMS LISTED BELOW shall be free from defects in material and workmanship for the stated period of time commencing from date of shipment or as stated below:

TEXOL GAS GENERATOR SYSTEM: One (1) year from customer receipt

Repair or replacement parts for Texol Gas Generator System: Ninety (90) days from customer receipt

EXCLUDED FROM THIS LIMITED WARRANTY:
The following shall be excluded from the Limited Warranty:

- Parts and items considered consumable in normal operations, including those parts and items supplied with the Texol Gas Generator System ("System") for maintenance.
- Any System and its parts that are not installed, operated, and maintained in accordance with the unit's manual supplied with the System.
- Damages due to accident, abuse, acts of God, acts of terrorism, misuse or negligence, or which result, in whole or in part, from improper or unauthorized use or repair of the System, or use of the System in a manner for which it was not designed, or by causes external to the System such as, but not limited to, power or air conditioning failure or voltage irregularities.

REMEDY: **BUYER'S sole and exclusive remedy in the event of defect, and the liability of TEXOL hereunder is limited to the adjustment, repair, or replacement of the defective item or part with a similar item or part free of defect.**

Such adjustments, repairs, or replacements will be made at TEXOL's Dundee, Scotland plant or, by agreement of both parties, at the site of the System, if BUYER so elects. All costs for shipping equipment or parts shall be on the account of the BUYER whether to or from the point of manufacture. Labour costs associated with travel, expenses, and subsistence costs for field services shall be on the account of the BUYER.

VOIDING OF THE LIMITED WARRANTY: This Limited Warranty is immediately void upon:

- THE OPENING OR DISASSEMBLY OF THE SYSTEM CABINET (OR ANY PART THEREIN), OR
- THE SALE, ASSIGNMENT OR ANY OTHER TRANSFER OF TITLE BY BUYER OF THE ITEMS OR PARTS OTHERWISE COVERED UNDER THIS LIMITED WARRANTY

WAIVER OF ALL OTHER WARRANTIES: THE LIMITED WARRANTY PROVIDED HEREUNDER AND THE RIGHTS AND REMEDIES OF THE BUYER HEREUNDER ARE IN LIEU OF, AND BUYER EXPRESSLY WAIVES, ALL OTHER WARRANTIES, GUARANTEES, OBLIGATIONS, LIABILITIES, OR REMEDIES, EXPRESSED OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND NON-INFRINGEMENT, IMPLIED WARRANTIES ARISING FORM THE COURSE OF DEALING OR USAGE OF TRADE AND IMPLIED WARRANTIES OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: THE REMEDIES PROVIDED IN THIS LIMITED WARRANTY ARE EXCLUSIVE AND TEXOL SHALL IN NO WAY BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER INCLUDING WITHOUT LIMITATION LOSS OF USE, REVENUE OR PROFIT.

8. Service

Contacting Texol Gasgen Service Department

Texol provides worldwide engineering and technical field service support for all its products. Field Service representatives are available for contact at the addresses below:

Texol Gasgen Ltd
Elderpark Workspace
Glasgow G51 3TR
Scotland, UK
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www.texol.co.uk
service@texol.co.uk